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Reiki and its Effect on the Chakras, as Measured by the Aurastar Imaging Device

Denielle Marie Edlund

REIKI AND ITS EFFECT ON THE CHAKRAS, AS MEASURED BY THE AURASTAR IMAGING DEVICE

Denielle Marie Edlund

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Presented by

Denielle Marie Edlund, B.A., M.S.W.

Major Advisor _____
Amala Guha

Associate Advisor _____
Joan Segal

Associate Advisor _____
Vasant Lad

University of Connecticut

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Chapter 1: Introduction to Concepts of Ayurveda and Energy Medicine

In recent years, the United States has seen an increase in the public's use of complementary and alternative medicine (CAM). In the face of an expensive, and often inadequate managed care system, patients are seeking out different approaches to healing. Recent studies have shown that Americans made over 600 million visits to complementary or alternative medicine practitioners in 1997, in comparison to approximately 400 million visits to all primary care physicians during the same year. It has also been projected that in 1997 Americans spent over $21 billion on professional CAM services, and about 60% of that was paid out-of-pocket (Cleary-Guida, 2001). In addition, it is estimated that CAM has an approximate growth rate of 30% per year, representing an increase in the number of people seeking CAM, rather than an increased number of visits per patient (Blecher, 1997). This trend in the use of health care in the U.S. reflects the public's interest in systems of health and healing that blend mind, body, and spirit, and that explore traditional as well as cross-cultural approaches to diagnosis and treatment. The evidence of this trend necessitates a closer look to gauge the potential impact of CAM on public health, particularly in regard to cost-benefit analyses and health outcomes.

A complementary approach to medicine encourages a blending of traditional allopathic approaches and unconventional approaches. This approach is sensible in that the current traditional approach in the U.S. healthcare system heavily emphasizes diagnosis and treatment, whereas complementary medicine tends to emphasize the prevention of illness. Alternative medicine describes an approach that is used in place of traditional Western medicine, and has a whole and separate system of health care.

The use of complementary and alternative medicine (CAM) has implications for improvements in the public's health while cutting costs, as many CAM modalities are relatively simple when compared to the expensive technological equipment and pricey pharmaceuticals used in today's healthcare system.

The fact that the use of CAM continues to grow, coupled with the potential improvements in overall health care and decreased costs, makes it imperative to study the use and outcomes of these modalities. This need is not going entirely unnoticed. The U.S. government has made efforts to fund research in complementary and alternative health approaches, as evidenced by the establishment of the National Center for Complementary and Alternative Medicine (NCCAM) by The National Institutes of Health. The mission of this agency is "To support rigorous research on CAM, to train researchers in CAM, and to disseminate information to the public and professionals on which CAM modalities work, which do not, and why" (NCCAM website, 2003). The NCCAM currently funds research projects throughout the nation to examine a variety of complementary and alternative therapies with scientific scrutiny. Many hospitals and medical schools are establishing their own complementary health education, treatment, and research efforts. Health insurance providers are also recognizing the interest and need for some CAM practices. Some health insurance companies, such as Oxford and Wellcare in Connecticut, now offer riders for complementary health. Several health insurance companies in the tri-state area cover the more mainstream CAM practices. For example, Blue Cross Blue Shield of Connecticut, Connecticare, and Aetna/ U.S. Healthcare, among others, include massage in their coverage. In addition, Allmerica Financial, Bronx Health Plan, and

Managed Healthcare Systems cover massage and acupressure (Cleary-Guida, 2001). Journals devoted specifically to the use and study of complementary and alternative medicine can be found in most university libraries, and more and more research on CAM can be found in major medical journals, specifically for the most widely used and accepted modalities, such as herbal remedies and vitamins, (De Smet, 2002) (Ang-Lee, 2001) although some may argue that herbs and vitamins are so widely accepted now that they could be considered mainstream.

Increasing attention in research efforts is presently being focused on the concept of Energy Medicine. In particular, the practices of t'ai chi, qigong, energy healing, and subtle energy phenomena have captured the attention of scientists and funding agencies. For example, the National Institutes of Health, through NCCAM, awarded $1.8 million in September 2002 to the Center for Frontier Medicine in Biofield Science in Arizona to research energy medicine phenomena (Jobst, 2002).

Ayurveda

Ayurveda can be considered the grandparent of many of the complementary therapies used in the U.S. today. It is thought that many of the concepts in Eastern medicine, including energy fields, stem from the Ayurvedic tradition of India. Many complementary therapies base their philosophy and practice on the *Chakra* system, the basis of Ayurvedic practice and tradition, which is described in detail later.

Ayurveda is an alternative, or complete, system of medicine that combines natural therapies with a highly personalized approach to treating disease, and has been practiced in India for the past five thousand years (Burton-Goldberg Group, 1992). It

is based on a comprehensive theoretical diagnostic and clinical framework and has prevention of disease as its primary emphasis (Bodeker, 2001). As previously mentioned, it is based on balance of energy in the *chakras,* or energy centers of the human body. The keystone to Ayurveda is the concept of "constitution" in which an individual's overall health profile is assessed, including strengths and susceptibilities. Individual's are carefully assessed by determining their metabolic type, or *dosha,* and treatment plans are designed which may include dietary changes, exercise, yoga, meditation, massage, herbal tonics, or medicated enemas, among others (Burton-Goldberg Group, 1992).

The three metabolic body types, or *doshas,* are *vata, pitta, and kapha.* They are distinguished by characteristics of physique that include physical body type, as well as other characteristics such as emotional response, and food preferences. Most people have a predominant *dosha,* but are made up of a mixture of *dosha* characteristics (Burton-Goldberg Group, 1992).

Ayurvedic medicine defines a healthy state as one in which there is balance between body, mind, and soul and an equilibrium among the *doshas.* There are seven major factors that can disrupt this balance - genetic, congenital, internal, external trauma; seasonal, natural tendencies or habits; and magnetic or electrical influences (Burton-Goldberg Group, 1992). It is important to mention Ayurveda in the context of this paper, as it is the foundation from which many practices stem. Some of the key areas of interest for this paper are the *chakra* system, the aura, energy medicine, and the practice of *Reiki.*

Concepts of Ayurveda: The *Chakra* System

A *chakra* can be defined as an organization center for the reception, assimilation, and transmission of energy in the human body, and is critical in Ayurvedic tradition. It literally means "wheel" or "disk" in Sanskrit and represents a point of intersection between the mind and body. The ancient Indian texts, the *Sat-Cakra-Nirupana,* written in 1577, and the *Padaka-Pancaka,* written in the tenth century, both contain descriptions of the *chakra* centers and related practices, and are the basis for our understanding of the *chakra* system today. (Judith, 2002) Based on these traditions, there are seven major *chakra* centers in the human body. They exist in what has been called the "subtle body", a nonphysical psychic body that is superimposed on the physical body. One method, called Kirlian photography, can capture the emanations of the subtle body in photographs (Judith, 2002).

The seven major *chakras* are located along a central axis from the base of the spine to the top of the head, and each is associated with a basic level of consciousness, and an element. They can be summarized as follows, but it is important to keep in mind that each *chakra* is more complex than the keywords given below in Table 1.

Table 1. The *Chakra* System

Chakra	**Location**	**Color**	**Level of Consciousness**	**Element**
One	Base of the spine	Red	Survival	Earth
Two	Lower abdomen	Orange	Emotions and sexuality	Water
Three	Solar plexus	Yellow	Personal power, will, and self-esteem	Fire
Four	Sternum	Green	Love	Air
Five	Throat	Blue	Communication	Sound
Six	Center of the forehead	Indigo	Clairvoyance, intuition, and imagination	Light
Seven	Top of the head	Violet	Knowledge, understanding, and transcendent consciousness	Thought

Chakra one is located at the base of the spine, is characterized by the color red, is associated with survival, and its element is earth. *Chakra* two is located in the lower abdomen, is characterized by the color orange, is associated with emotions and sexuality, and its element is water. *Chakra* three is located in the solar plexus, is characterized by the color yellow, is associated with personal power, will, and self-esteem and its element is fire. *Chakra* four is located over the sternum, is characterized by the color green, is associated with love, and its element is air. *Chakra* five is located in the throat, is characterized by the color blue, is associated with communication, and its element is sound. *Chakra* six is located in the center of the forehead, is characterized by the color indigo, is associated with clairvoyance, intuition, and imagination, and its element is light. *Chakra* seven is located at the top of the head, is characterized by the color violet, is associated with knowledge, understanding, and transcendent consciousness, and its element is thought (Judith,

2002). In addition to their relation to levels of consciousness and elements, it has been suggested that, on a physiological level, these seven major *chakras* correspond to major central nervous system clusters that emanate from the spinal column, as well as to glands in the endocrine system. (Judith, 2002) (Rand, 1991) (Brennan, 1987). However, it is important to note that *chakras* are not meant to be interpreted as synonymous with any portion of the physical body, but are still considered to be part of the subtle body (Judith, 2002).

Concepts of Ayurveda: The Aura

The concept of the *aura,* also called the human energy field, is interconnected with the *chakra* system. The *aura* is the meeting point between the core patterns generated by the *chakras* and the influence of the outer world (Judith, 2002). It has been described as a luminous body that surrounds and penetrates the physical body and emits its own characteristic radiation. Based on observations, the aura has been divided into several layers, and can be seen by the human eye and special photography as colors. (Brennan, 1987)

Concepts of Ayurveda: Energy Medicine

For centuries, cultures around the world have believed that humans are not only made up of flesh and bones and as a result have based their healing techniques and spiritual beliefs around a central concept of energy forces in and around the human body.

For example, in ancient Indian spiritual tradition, the concept of *Prana* dates back over 5,000 years and represents the existence of universal life energy, considered to be the basic constituent and source of all life. For centuries, Yogis have practiced manipulating this energy to maintain altered states of consciousness through breathing techniques, meditation, and physical exercise (Brennan, 1987).

The Chinese have recognized the existence of universal energy, *Chi*, dating back to the third millennium B.C. *Chi* is the universal energy that composes and pervades all matter, animate and inanimate. The Chinese belief system posits that *Chi* contains two polar forces, the yin and the yang. If these polar forces are balanced, then the living system exhibits physical health. If they are unbalanced, a diseased state results (Brennan, 1987). Traditional Chinese Medicine treats the human body as a system of energy pathways called meridians, in which *Chi* is flowing, that link organs and other systems in an integrated whole. The concept of *Chi* is also the basis for the practice of acupuncture (Frantzis, 1993).

The Jewish mystical theological philosophy, dating back to 538 B.C., refers to the concept of astral light, and Christian religious paintings often show spiritual figures, such as Jesus, surrounded by fields of light. In addition, ancient Hindu Vedic texts, Native American Medicine People, Tibetan and Indian Buddhists, and Japanese Zen Buddhists, among others, describe some similar concept of a human energy field (Brennan, 1987).

The notion that humans have an energy field that may be useful in the diagnosis and treatment of disease may not be necessarily widely accepted, despite its historical and cross-cultural roots, but it is recently gaining more attention in the

United States. Some of the CAM interventions that are thought to involve subtle interactions in the energy field include acupuncture, electroacupuncture, laser acupuncture, acupressure, reflexology, bioelectromagnetic medicine, electrodermal testing, electrostimulation, electrotherapy,biofield therapies (Reiki, Therapeutic Touch, healing touch, etc.), homeopathy, Bach flower remedies, magnet therapy, microwave resonance therapy, low-level laser therapy, phototherapy, color therapy, and orgonomy. Together, these have been called energy medicine (Rubik, 2002). Energy medicine also includes the use of diagnostic screening devices to measure electromagnetic frequencies emitted by the body to determine imbalances, as well as the use of treatments that send electromagnetic signals to restore balance in the body (Burton Goldberg Group, 1992). The way that energy medicine works is not well understood in the Western biomedical paradigm, which is most likely why it remains outside the mainstream. Therefore, creating a scientific foundation for this field is important for advancing research, utilization, and acceptance of these practices.

For nearly the past 80 years, attempts have been made to explore the aforementioned concepts of energy within the modern Western scientific paradigm from both a physical and biological perspective. Field Theory, Relativity, Superluminal Connectedness, Morphogenic Fields, Multi-Dimensional Reality, and String Theory are some of the theories and concepts discovered by physicists that could serve as a springboard for connecting these ancient concepts of energy with a Western scientific paradigm. For example, Field Theory is based on the idea that electrical charges between two particles create a "disturbance" or "condition" around it that can be felt by the other particle, giving rise to the concept of a universe of fields

that interact with each other. In the 1800s, Mesmer and Helmont, reported that a "fluid" surrounded animate and inanimate objects, and that this "fluid" could cause material bodies to exert an influence on each other at a distance. Court Wilheim Von Reichenbach experimented with a field which he called the "odic force" in the mid 1800s. He found that this force could be conducted through a wire, but did not have the exact properties of an electrical field (Brennan, 1987). In addition, Tiller proposed the existence of a new force in addition to the other four known forces of physics (Rubik, 2002). Finally, most recently, physicists have been exploring String Theory, which suggests that all matter universally can be reduced at the most minute level to small loops of vibrating energy, "strings", linking the previously incompatible theories of quantum mechanics and general relativity (Greene, 1999). This becomes important when the "universal life energy" of energy medicine modalities is explored.

Biological theories have also been used to begin exploration into the energy field. Many of these theoretical explorations have been applied to medicine. As far back as 500 B.C., the Pythagoreans recorded their observation of a luminous body that surrounded the human body, and could have an effect on the human organism, including the cure of illness. In the 20th century, some medical doctors became interested in the phenomenon of a human energy field and conducted research to investigate its properties. For example, a Yale biologist, Harold Saxon Burr, with F.S.C. Northrup, explored over a twenty year period the concept of the electrical correlates of living systems as related to medicine, and proposed an electrodynamic field underlying life (Rubik, 2002). Dr. William Kilner used colored screens and filters to observe a human energy field and coined the term "aura" to describe what he

found. He described a glowing mist around the body in three zones: 1) a quarter-inch dark layer closest to the skin; 2) a vaporous second layer surrounding the first layer, and streaming perpendicularly from the body; and 3) an exterior luminous layer with indefinite contours about 6 inches across. He developed a system of diagnosis based on the color, texture, volume and general appearance of this "aura" (Brennan, 1987).

Although biologic field concepts were part of the mainstream for the first half of the twentieth century in the United States, the field concept became taboo as molecular biology grew more dominant after 1950 (Rubik, 2002). Only recently has the field concept again stirred an interest in the scientific and medical community, most likely as a result of the growing interest in CAM therapies. Since then, Dr. George De La Warr and Dr. Ruth Drown have developed "Radionics," a system of detection and diagnosis based on the human energy field. In addition, research has been done to verify the ability of aura seers to accurately read energy fields. One team at UCLA has recorded the frequency of low millivoltage signals from the body during rolfing (a complementary energy healing modality) sessions. Electrodes were placed on the skin of the subject to detect electronic signals. Simultaneously, an individual sensitive to seeing auras verbally recorded her running observations. The wave pattern results were mathematically analyzed. Results showed that the wave forms and frequencies correlated specifically with the colors that the individual had reported. The same experiment was repeated with seven other aura readers, with similar results (Brennan, 1987). In addition, Savva has proposed a biofield that goes beyond electromagnetism and involves non-physical and mental components (Rubik, 2002). And Zhang has considered an "electromagnetic body" comprised of a complex, ultra

weak field of chaotic, standing waves which form energetic anatomic structures, including the *chakras* and acupuncture meridians (Rubik, 2002).

The unifying principle of the above researchers is that the biofield is a holistic or global organizing field of the organism. It requires a look at the human body and health from a system's perspective, and combines ideas from physics and biology to explain the existence of a human energy field. The biofield approach requires a moving away from a linear system perspective, in which behaviors are strictly proportional, which is much of the basis for current Western medical thinking. For example, in the biomedical paradigm, a response is directly proportional to a stimulus, and modules can be taken apart and put together again and still behave exactly the same (Rubik, 2002). A system's perspective in contrast would take into account the subtle energy exchanges among all parts of the system as a whole.

Although a full discussion of the concepts and experiments related to the exploration of a human energy field, or biofield, is beyond the scope of this paper, they are important to consider if we are to find the common ground between Western science and these cross-cultural beliefs of energy healing. This understanding will allow a more open exchange, and consequently, more rigorous scientific investigation into how these modalities work.

Reiki

Reiki (pronounced Ray-Key) is a Japanese energy healing modality, using touch to bring balance to the body, mind, and soul. It has been used for stress reduction, relaxation, and for the promotion of healing. The technique involves the

light laying on of hands on the body in a series of ordered positions, in correlation to the seven major *Chakra* centers of the human body (See Appendix 1) (Rand, 1991). Reiki originated in the Tibetan Sutras nearly 3,000 years ago and was reintroduced in Japan in the early 1900s by Dr. Mikao Usui. One Reiki master, Takata, who was practicing Reiki in Hawaii in the 1930s, was responsible for its spread to the United States in the 1970s (Wardell, 2001).

In Japanese, "Rei" means universal; however, this interpretation is general because Japanese ideograms have many levels of meaning. "Ki" means life energy or universal life force. Together, they mean "universal life force." *Ki* has the same meaning as *Chi* in Chinese and *Prana* in Sanskrit (Rand, 1991).

Reiki practitioners are trained at three levels: Level I, Level II, and Reiki Master. Training for Reiki must include an attunement by a Reiki master. This attunement allows a practitioner to channel universal energy to another individual. This can be done by the laying on of hands at the first level, and then from a distance as a Level II and Reiki Master. A Reiki master is the only level of practitioner who can attune Reiki practitioners in training.

The use of Reiki is growing more popular in mainstream medical practice, and has been shown to significantly decrease anxiety, as measured by its effect on systolic blood pressure and salivary IgA levels (Wardell, 2001). It has also been shown to be effective in managing pain (Olson, 1997) and in treating drug addictions (Hagemaster, 2000). Many hospitals now have Reiki practitioners on staff, paid or volunteer, to treat patients in a variety of settings, including pre-operative, during surgery, surgery recovery rooms, cardiac rehabilitation, and outpatient clinics. Although no formal

research exists in many of these areas, anecdotal evidence suggests that Reiki has been successful when used for patients with chronic illnesses, chronic pain, musculoskeletal injury/pain, headache, acute infections, trauma, heart attacks, respiratory problems, allergic reactions, and asthma (Rand, 1991). A survey of complementary medicine professional organizations indicated that Reiki was recommended for patients with stress/anxiety and headaches/migranes (Long, 2001).

As noted, Reiki has gained recent popularity and is now offered in many hospitals and other medical settings to complement standard care. However, research efforts to examine Reiki's specific effects are lacking in comparison to its burgeoning popularity. Reiki is known anecdotally for decreasing stress and increasing feelings of relaxation by those who receive it. Previous research has backed up these anecdotal reports and found that Reiki does have significant effects on biological correlates with Reiki in reducing stress and increasing relaxation (Wardell, 2001) (Witte, 2001). Studies have also shown Reiki to be effective in the management of pain, drug addiction, post-stroke rehabilitation and post traumatic stress disorder, among others (Olson, 1997) (Shiflett, 2002). Though few and far between, several studies have been conducted with significant findings in the recent past, warranting more research in this area.

In addition, it is not well documented what exactly happens when a Reiki treatment is given, and why it has shown to be effective in promoting healing for a variety of conditions. One study investigated what happens to Reiki practitioners and receivers during practice. They found that brain waves of the practitioner and receiver become synchronized in the alpha state, and these waves pulse in unison with the

earth's magnetic field, the Schuman Resonance (Becker, 1985). Zimmerman (1990) and Seto (1992) also investigated the biomagnetic field that is emitted from the hands of energy practitioners as they perform healing. They both discovered that pulses coming from the hands of practitioners are in the same frequencies as brain waves and range from .3 – 30 Hz, focusing in the 7-8 Hz alpha state. Many physiotherapy equipment devices use electromagnetic frequencies in this range to promote bone and ligament healing (Sabrina, 2000). Hartwell and Brewitt (1997) investigated the effects of Reiki on acupuncture meridian points, as measured by the Life Information System TEN (LISTEN) device. Their pilot study examined a small group of chronically ill patients who were given eleven weekly, one-hour Reiki sessions during which no new allopathic or complementary treatments were received. The LISTEN device measured the electrical skin resistance of each patient at a large number of conductance points on the hands and feet. These conductance points were based on acupuncture points correlated with the spleen, adrenal glands, and cervical, thoracic region of the spine. Patients were measured at three time points, which were found to show significant differences before and after Reiki. Schlitz and Braud (1985) used biofeedback devices to measure the galvanic skin response (GSR) of people receiving distant Reiki, a form of Reiki that can be performed even if the practitioner and patient are not in physical contact. Those who were more stressed showed a greater effect of distant Reiki on their GSR.

It has been shown that Reiki has an effect on the physical body, as well as on the energy field of Reiki practitioners. And, the above research suggests that there is an energy transfer between practitioner and receiver of Reiki. However, the effect of

Reiki on the energy field of the patient, or receiver, of Reiki has not been documented in the current available literature base. This study set out to explore the relationship between Reiki, Ayurveda and the Chakra system as they are, in theory, connected. Thus far no published reports have examined an evaluation of these methods together. The purpose of this study was to examine the effects of a single, 45-minute Reiki intervention on the *chakras*, as measured by the Aurastar imaging system, an energy medicine diagnostic device. Both participants and the Reiki practitioner were measured at time points before, during, and after Reiki. The hypothesis was first, that Reiki would improve energy flow to the *chakras*, when measured by the Aurastar imaging device. And secondly, general health, quality of life, and Ayurvedic *doshas* were assessed and were expected to correlate with changes in *chakra* levels as a result of a Reiki intervention.

Chapter 2: Methods of Study and Results

Research design

The study used a single group repeated measures design. Advantages of this design are 1) variability as a result of individual differences are removed from the error term, resulting in increased precision and 2) economy of subjects (Stevens, 1996). Participants' *chakra* levels were measured at three points, at baseline, during (at 30 minutes), and after a 45-minute Reiki intervention. The Reiki practitioner was not involved in the health interview and Ayurvedic body type analysis prior to the Reiki intervention, and was also blinded to the results of the *chakra* analyses at all three time points. The only information revealed to the Reiki practitioner during the study were the *chakras* that needed to be focused on in the second, 15- minute section. Subjects were also blinded to the results of their aura/*chakra* analysis.

Sample

Participants were recruited from the University of Connecticut Master in Public Health student and alumni mailing list, as well as through the Yale Psychology Department list serve. An e-mail was sent out, inviting those interested in trying Reiki to participate. Eligible participants comprised a convenience sample, consisting of adults, ages 18-65, who responded to email requests to participate in a study examining the effects of Reiki treatment. Prior experience with Reiki did not have an impact on inclusion in the study.

An estimated 100 people were contacted to participate, and 27 responded with interest to participate after hearing more information. Interested participants were

then contacted by telephone, and three options for appointments were offered. Twelve participants could not come during the scheduled times. Fifteen sessions were scheduled and three participants dropped out, due to conflicts with scheduled appointments on the days offered. Nine individuals participated in the study, and two were not included in the analysis due to incomplete data sets.

Participants included 6 females (88.9 %) and 1 male (11.1%) between the ages of 29-56 with a mean age of 40 years (SD 10.1). The ethnicity of the sample included 5 Caucasian and 2 African American individuals. One participant had experienced Reiki in the past.

Instruments

General health of participants was measured with the SF-36v2 health survey and the Quality of Life Inventory. Ayurvedic body type (*dosha*) was measured by the Ayurvedic Prakurti Analysis.

The 36-item short-form (SF-36) is designed for clinical and research use, health policy evaluations, and general population surveys. It includes one multi-item scale that assesses eight health concepts: 1) limitations in physical activities because of health problems; 2) limitations in social activities because of physical or emotional problems;

3) limitations in usual role activities because of physical health problems; 4) bodily pain; 5) general mental health (psychological distress and well-being); 6) limitations in usual role activities because of emotional problems; 7) vitality (energy and fatigue); and 8) general health perceptions. It was designed for self-administration by individuals 14 years of age and older and/or for administration by a trained interviewer in person or by telephone (SF-36 website, 2003).

The imaging system used in this study, called the Aurastar Imaging System, is based on the sciences of biofeedback, reflexology, kinesiology, and concepts in Ayurvedic medicine. This German biofield imaging technology was developed by a team under an Ayurvedic physician, Dr. Balaji Tambe and his associate, Martina Gruber. This technology uses a hand plate with three hand sizes, each with marked segments and biofeedback energy sensors, that utilizes the combination of biofeedback, electroencephalogram, and electrocardiogram technology (Doan, 2003).

The hand is placed on the plate, and sensor electrodes gather the biofeedback

data, which is then processed and translated to a computer program (Colour Energy, 2003). Each sensor on the board corresponds to reflexology, or body organ, zones in the left hand. Every .2 seconds the pulse of each reflex zone is measured, and these electronic signals are recorded from the palm to a hand plate or energy sensor board. Information about the organs is then translated to a graph (for *chakras*) and a color frequency (for *auras*) by the computer software program. The resulting reading shows the colors that correspond to the aura layers and seven major *chakra* centers for the individual, processed and translated by the computer program into color zones on the body, which show the full body aura and the seven major *chakras* on a computer monitor, represented by da Vinci's Vitruvian Man (or woman), or using a digital camera (optional), on the person's photograph (Colour Energy, 2003). (See diagrams 1 and 2.)

The information for *chakra* readings is represented by a percentage figure. The *chakra* percentage is the collective number that represents the activity of all the organs and glands that are governed by that *chakra*. For example, the root *chakra* represents the rectum, anus, reproductive system, spine, and bladder. The total *chakra* activity ranges in value from 1-100. An optimum reading would be at 50% (Doan, 2003). See diagram 3.

Diagram 1. Aurastar Handplate Sensor.

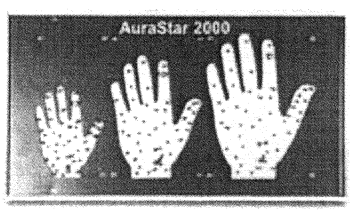


Diagram 2. Aurastar *Chakra* Output.

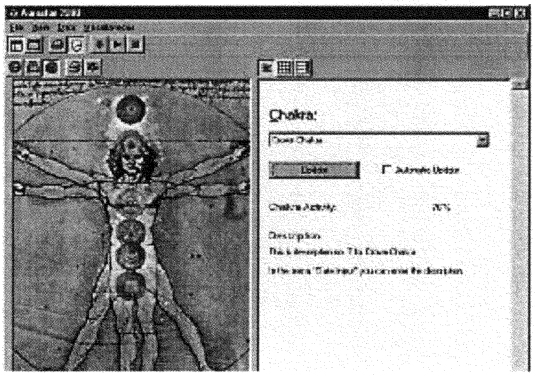
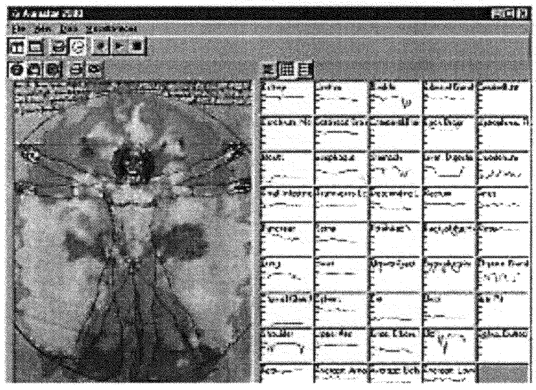
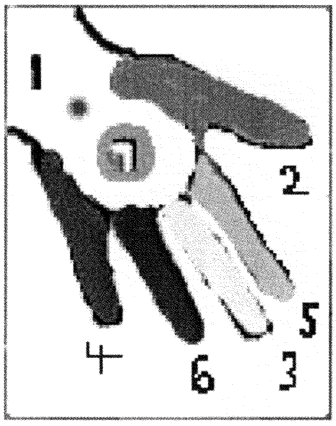


Diagram 3. Aurastar Energy Graph Readings.



The Aurastar Imaging System utilizes concepts in Reflexology, which has its roots in Traditional Chinese Medicine as well as Ayurvedic principles. Reflexology practice is based on the belief that certain parts of the hand have an energy-based link to the organs of the body. According to ancient Eastern healing sciences, these zones in the hand also have a link to the *chakras*. In Chinese and Indian medical systems, diagnosis and therapies are often done through areas of the face, ear, foot and hand, which are "reflex zones" and correspond to other parts of the body. (See diagram 4)

Diagram 4. Reflexology Points Corresponding to *Chakras*



In one study, a Qigong master's hand was hooked up to a biological detector that could record energy, using a leaf vein and a photoquantum device. This detection system was shown to respond to the radiation of energy in the form of a pulse (Brennan, 1987). Although studies of the accuracy of this machine could not be found in the literature, a few countries, such as Germany and Russia, use this machine as a diagnostic tool or aid for their medical practice. One article suggests that these types of machines, based on reflexology, function by stimulating reflex points that allows them to send and receive information from other regions of the body. This stimulation is postulated to interact with the biofield, and the specificity of this action may relate to boundary conditions of the biofield at certain tissue interfaces (Rubik, 1995). Biofield imaging has been used in mainstream medicine to analyze breast tumors. Sensors were placed on the breast to assess the activity, or energy level, of the tumors within the breast. Results from these tests were significant, and this method of analyzing tumors is now growing in use in medical centers. It is also awaiting Food and Drug Administration approval.

However, more research on the mechanism of this device, as well as its efficacy in measuring energy levels in the body, is necessary for future investigations similar to this one. Of particular importance would be a study to compare the diagnostic ability of this machine when compared to Western medical methods.

Procedure

Informed consent was obtained from participants when they arrived. Personal interviews were verbally administered to each participant, consisting of the SF-36, the Quality of Life Inventory, and an Ayurvedic body type analysis, taking roughly 30 minutes total to complete. Participants were then brought to a separate room where the first *chakra* analysis was completed by two individuals from Aura Energy Consulting, LLC, both trained in the use of the Aurastar Imaging System. Participants were asked to sit in front of the hand sensory board and were told to put their left hand on the board on the appropriate sized hand form. Participants were then blindfolded and told that for the purposes of the study, they would not be able to see the results of their analyses until after the study was over. Technicians then fitted the hand to the sensory board, ensuring that the hand was properly placed so that sensors would be able to detect a reading. If the imaging system would not pick up a reading, as indicated by the system on the monitor, participants were asked to remove their hand from the sensor board and were asked to wipe their hand with a moistened towelette, and then place their hand back on the sensor board once the hand was dry. When the imaging system indicated the ability to read the hand points, participants were asked to

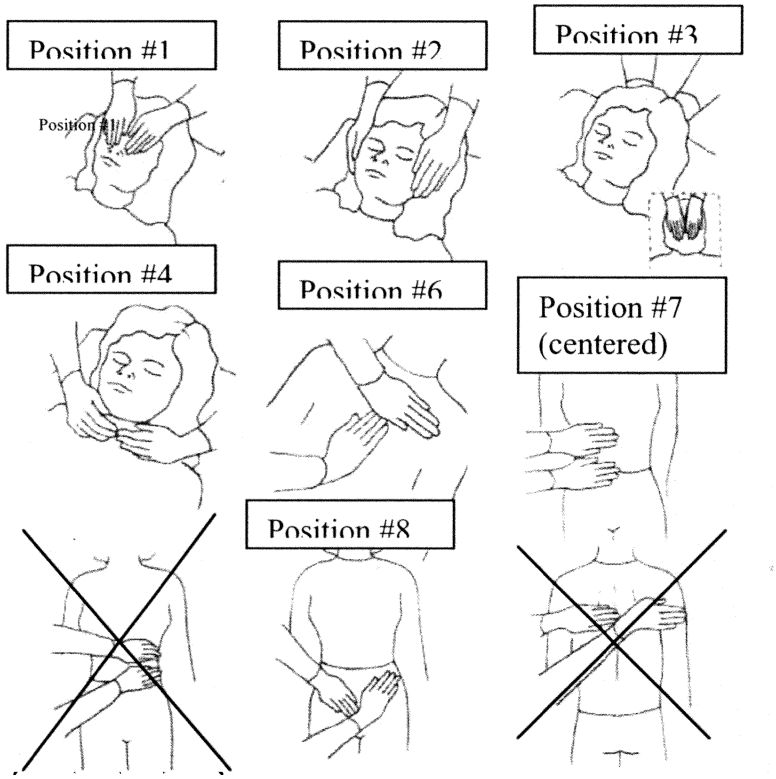
count backwards from 100 to 0. During this time, the technicians facilitated the reading by applying pressure to the hand if a point was not being read properly.

After the initial reading was recorded in the computer system, the subject was then brought to another room and introduced to a Reiki II practitioner, for their first 32-minute session of Reiki. This practitioner conducted all treatments to provide consistency in Reiki experience and administration. Participants removed their shoes and glasses if necessary, and were asked to lay on blankets on the floor in a candlelit room, their heads propped on pillows if they desired. Reiki was explained briefly to each patients as follows:

> "Reiki is an energy healing modality formalized in Japan in the early 1900s. Reiki is administered by the laying on of hands on standardized positions on the body. I will be putting my hands on your head and torso in 8 different positions, each for about 4 minutes. If any position is uncomfortable for you for any reason, please tell me and I will move on to the next position."

Reiki treatment was standardized, administered in eight positions, each for 4 minutes. Positions were as administered in the same sequence as follows: both hands over the eyes (position #1), both hands on the crown of the head (position #2) both hands behind the head (position #3), both hands over the collarbone (position #4) one hand behind the neck and one on throat area (position #5 – not shown in diagram), both hands on the mid to lower chest (position #6), both hands on the upper stomach (position #7), both hands on the lower stomach (position #8) (See Diagram 5) Soft relaxation music CDs were played throughout the session.

Diagram 5. Reiki Positions



At the conclusion of this thirty-two minute session, the Reiki practitioner removed her hands from the participant and verbally informed him or her that the first session was over. The participant was instructed to get up slowly and was led to the adjacent room for another reading on the imaging machine. The technicians used the same methods to get the reading as described earlier. When the reading was complete, participants were brought back to the Reiki room and asked to lie down and wait for a minute. The technicians then gave the Reiki practitioner a paper indicating three *Chakras* that had come up as unbalanced on the reading. The Reiki practitioner returned to the participant and focused Reiki hand positions on the areas indicated by the technicians. The practitioner used the following positions for the *chakras* indicated:

chakra #1 - position #8, *chakra* #2 - position #7, *chakra* #3 - position #7, *chakra* #4 - position #4, *chakra* #5 - position #3, *chakra* #6 - position #1, *chakra* #7 - position #1. Each of the three positions indicated was administered for 5 minutes in the second Reiki session, one hand position for each *Chakra* site indicated, for a total of 15 minutes. The second session was described to participants as follows:

> "This time, I am going to focus on specific areas for a longer period of time. I will be putting my hands on three different positions, and this time I will hold the position for five minutes. The total session will be fifteen minutes."

At the termination of the Reiki session, participants were asked to go back for a third reading on the imaging system. Again, the protocol for administering the aura/*chakra* analysis proceeded identically to that described earlier.

Outcome Evaluation

Participants (7) who completed Reiki treatment were compared against their own baseline measures. Because this evaluation strategy did not use random assignment, and did not have a comparison group, it can be considered a quasi-experimental design with one group (intervention) and three time points (baseline prior to Reiki intervention, 30 minutes into the Reiki session, and immediately following the 45-minute intervention).

The SF-36, a general health questionnaire consisting of 36 items, was administered prior to baseline *chakra* readings and the Reiki intervention, as was the

Ayurvedic body type analysis. In addition, the Quality of Life Inventory, a questionnaire consisting of 33 items, assessed overall health on 5 scales: physical well-being, social/family well being, relationship with doctor, emotional well-being, and functional well-being. This was also administered prior to the intervention. These questionnaires were used to assess the overall physical and mental health of participants, so that this information could be correlated with *chakra* readings and change over the three time points.

Results

The analysis was focused on the change in *chakra* levels over the three time points. Repeated measures analysis of variance (rmANOVAs) were run to compare the group means over three time points: baseline, during, and after a 45-minute Reiki intervention. Using SPSS statistical software, all seven *chakra* points were analyzed. Change over time was not found to be significant ($p<.05$) for any of the seven *chakras* over three time points (See Table 2).

Table 2. Chakra Changes Before, During and After a 45-minute Reiki Intervention

	Time 1	Time 2	Time 3	F	Significance
Chakra 1	50.00 (4.80)	50.14 (13.47)	50.40 (8.04)	.01	.99
Chakra 2	51.14 (5.40)	51.86 (6.23)	50.86 (8.21)	.09	.92
Chakra 3	50.43 (4.72)	55.85 (7.40)	55.86 (7.86)	2.2	.15
Chakra 4	47.86 (5.70)	48.29 (7.89)	51.00 (5.39)	.56	.59
Chakra 5	46.00 (5.32)	44.57 (3.82)	50.29 (4.89)	2.4	.13
Chakra 6	49.71 (13.48)	60.86 (10.32)	56.14 (12.75)	1.6	.23
Chakra 7	54.71 (10.48)	56.57 (8.03)	56.14 (12.63)	.09	.92

N=7
Note: Time 1=Baseline, Time 2=32 minutes into Reiki intervention, Time 3=Post Intervention

Additional t-tests were run to assess comparison of means for *chakras* 1 and 2. These would assess any significant change between any two time periods (baseline to time 2, time 2 to time 3, baseline to time 3), as a backup. No significant results were found when these means were compared (See Table 3).

Table 3. Comparison of Single Time Interval Means

	df	t	Significance
Time 1, Chakra 1 Time 2, Chakra 1	6	-.04	.97
Time 2, Chakra 1 Time 3, Chakra 1	6	-.06	.96
Time 1, Chakra 1 Time 3, Chakra 1	6	-.15	.44
Time 1, Chakra 2 Time 2, Chakra 2	6	-.38	.72
Time 2, Chakra 2 Time 3, Chakra 2	6	.50	.64
Time 1, Chakra 2 Time 3, Chakra 2	6	.09	.94

N=7

Note: Time 1=Baseline, Time 2=30 minutes into Reiki intervention, Time 3=Post Intervention

It was expected that participants who had different overall health conditions and Ayurvedic *doshas* would have varying results in their *chakra* analyses. Because no significant changes in *chakra* levels over time were found, it was not necessary to assess correlations for the relationship between changes in *chakras* throughout the intervention, overall health, and *doshas*. However, it was important to assess whether overall health or *dosha* could be correlated with the baseline *chakra* readings. This would show whether or not characteristics of general health as measured by the SF-36, Quality of Life Inventory, or Ayurvedic body type analysis would correspond to varying *chakra* levels on the Aurastar readings. Therefore, the physical well-being, social/family well being, emotional well-being, and functional well-being scales on the Quality of Life Inventory were reversed-scaled on items as necessary and calculated as an average for the 8-9 items on each of these well-being scales. Group

means for each scale were calculated and correlations were run with each of the seven *chakra* readings at baseline. Using Pearson Correlation tests, social/family well-being was shown to be significantly correlated to *chakras* 7 and 8 ($p<.05$). Baseline *chakra* readings and *doshas,* or Ayurvedic body type, were also correlated, and yielded no significant results ($p<.05$) (See table 4). Several items on the SF-36 were chosen for correlation analysis with baseline *chakra* readings as well. Having felt nervous in the past 4 weeks was shown to be correlated ($p<.05$) with *chakra* 5 baseline readings.

Table 4. Self-Reported Health Correlations with Baseline Chakra Reading

CHAKRAS

	1 Pearsons Correlation, (Two-tailed Significance)	2 Pearsons Correlation, (Two-tailed Significance)	3 Pearsons Correlation, (Two-tailed Significance)	4 Pearsons Correlation, (Two-tailed Significance)	5 Pearsons Correlation, (Two-tailed Significance)	6 Pearsons Correlation, (Two-tailed Significance)	7 Pearsons Correlation, (Two-tailed Significance)
QOL ***WELL-BEING SCALES:***							
Physical	.26 (.58)	.23 (.62)	.68 (.10)	.04 (.93)	-.25 (.60)	-.34 (.45)	.38 (.41)
Social /Family	-.01 (.98)	.20 (.67)	.47 (.29)	.39 (.39)	.22 (.64)	.88 (.01)*	.85 (.02)*
Emotional	-.53 (.22)	-.14 (.76)	.20 (.66)	-.18 (.71)	-.54 (.21)	-.15 (.74)	-.29 (.52)
Functional	-.05 (.91)	.02 (.96)	.33 (.47)	.42 (.35)	-.47 (.29)	-.44 (.33)	-.70 (.08)

	1 Pearsons Correlation, (Two-tailed Significance)	2 Pearsons Correlation, (Two-tailed Significance)	3 Pearsons Correlation, (Two-tailed Significance)	4 Pearsons Correlation, (Two-tailed Significance)	5 Pearsons Correlation, (Two-tailed Significance)	6 Pearsons Correlation, (Two-tailed Significance)	7 Pearsons Correlation, (Two-tailed Significance)
BODY TYPE	-3.13 (1.0)	.26 (.58)	-.60 (.16)	.28 (.55)	.48 (.28)	.44 (.33)	.22 (.63)
SF-36 QUES-TIONS							
I AM AS HEALTHY AS ANYBODY I KNOW	-.12 (.79)	-.09 (.85)	-.07 (.87)	-.03 (.56)	.02 (.96)	-.15 (.75)	.16 (.74)
HOW MUCH BODILY PAIN HAVE YOU HAD IN THE PAST 4 WEEKS?	.40 (.37)	.73 (.06)	.13 (.78)	.05 (.92)	.57 (.18)	-.25 (.58)	.02 (.97)
DURING THE PAST 4 WEEKS DID YOU FEEL FULL OF LIFE?	.11 (.82)	.11 (.82)	-.41 (.36)	-.08 (.87)	.42 (.35)	.04 (.93)	.35 (.44)
DURING THE PAST 4 WEEKS HAVE YOU BEEN VERY NERVOUS	-.50 (.25)	-.45 (.31)	.10 (.83)	.00 (.99)	-.77 (.04)*	-.38 (.40)	-.45 (.31)
DURING THE PAST 4 WEEKS HAVE YOU FELT DOWNHEAR TED AND DEPRESSED?	-.09 (.85)	-.10 (.84)	.26 (.58)	.28 (.55)	-.56 (.19)	-.67 (.09)	-.65 (.11)
DURING THE PAST 4 WEEKS HAVE YOU	.36 (.42)	.13 (.78)	-.48 (.27)	.04 (.93)	.60 (.15)	.16 (.73)	.46 (.30)

FELT CALM AND PEACEFUL?							
DURING THE PAST 4 WEEKS DID YOU FEEL TIRED?	-.12 (.79)	-.09 (.84)	.58 (.17)	.01 (.98)	-.06 (.20)	-.25 (.58)	-.46 (.29)
I SEEM TO GET SICK A LITTLE EASIER THAN MOST PEOPLE	-.10 (.84)	-.38 (.40)	-.01 (.98)	.28 (.55)	-.38 (.40)	.05 (.92)	-.26 (.57)

Chapter 3: Discussion of Results and the Impact on Public Health

Discussion

The aim of this study was to determine the effect of Reiki on the *chakra* system as measured by an energy medicine diagnostic device, the Aurastar Imaging Device. Given the findings of Hartwell and Brewitt (1997) and Schlitz and Braud (1985), a significant effect was expected to be seen in the changes in *chakra* levels at three time points in a 45-minute Reiki intervention. Reiki is an energy healing modality that purports to channel universal energy through the practitioner to the patient, and it was hypothesized that the Aurastar, which was designed to read energy in the *chakra* centers, would detect these changes. Although no significant changes were seen in *chakra* levels before, during, and after Reiki treatment, several items did yield significant results.

When looking at the correlation between general health and baseline *chakra* readings, it was found that emotional/family well-being could be correlated to readings for *chakras* 6 and 7. And, having felt nervous in the past 4 weeks was shown to be correlated with *chakra* 5 baseline readings. As noted earlier, *Chakra* five is located in the throat, is associated with communication, and its element is sound. *Chakra* six is located in the center of the forehead, is associated with clairvoyance, intuition, and imagination, and its element is light. *Chakra* seven is located at the top of the head, is associated with knowledge, understanding, and transcendent consciousness, and its element is thought. In addition, these *chakras* are thought to be related to nerve ganglia and/or endocrine system glands in the human body. This shows that there may be a measurable relationship between emotional health and

chakra system. Although interpretation of this finding would be subjective at this level, these results may warrant further research in this area.

The fact that this study did not yield significant results in terms of *chakra* level changes over time should not dissuade further attempts at research in this area. However, several factors are important to note that would improve upon this study design for future research, such as sample size, randomization, comparisons or controls, and cross-reference testing for the Aurastar Imaging Device.

A future study would benefit from a larger sample size to increase the statistical power for evaluation. For example, for a study such as this, inclusion of at least fourteen subjects would meet the following criteria: α=.05, power=.80, number of repeated measures=3, average correlation among repeated measures=.80, effect size=medium. A larger sample size would also benefit the evaluation and correlation of *doshas* with baseline *chakra* levels, and would avoid small numbers of subjects present in any one given category. Ideally, participants would be randomized to either the Reiki intervention, or to a no intervention comparison group. Randomization would control for self-selection bias, subject demographics, and subject general health. A comparison group would measure changes in the *chakras* over time in individuals who did *not* receive Reiki, to help isolate the effect of Reiki as measured by the Aurastar Imaging Device.

Prior research has demonstrated that music affects sIgA levels (McCraty, 1996), and playing music while giving Reiki treatments in this study could have been a confounding factor. In a future study, music could either not be incorporated, or if it

is, three conditions could be included for the intervention group, testing no music and Reiki, music alone, and Reiki alone (Witte & Dundes, 2001).

The Aurastar Imaging Device is designed to measure subtle energies in the body and report the balance in the *chakra* system. Since use of this device is not common in this country, it would be important to include known physiological pre- and post-test measures that could be compared against the results of the machine. For example, biological correlates such as blood pressure, heart rate, respiration rate, and salivary cortisol or salivary IgA could be taken at the same time intervals as the Aurastar to test for correlation. In addition, a visual analog pain scale, or state anxiety inventory (such as the State-Trait Anxiety Inventory) could measure perceptions of pain and/or anxiety before and after the Reiki intervention. The results of these findings could help to determine the utility and efficacy of the Aurastar as a diagnostic tool. Such cross-reference testing could increase the credibility of energy medicine in the Western medical world.

It is important to note that the task of creating evidence-based research in CAM is a challenge. It is critical to create projects that combine quantitative and qualitative data. However, many CAM practitioners operate in a different philosophical approach to care, and most of these therapies are based in different cultural underpinnings which may be difficult to translate quantitatively. Currently, trends in research reflect society's interest in an evidence-based approach to answering some of these questions. The dilemma is, we may not currently have the technology to satisfy this requirement, leading to what Richardson calls the "swampy lowlands" of evidence-based CAM research (Richardson, 2002). Many complementary

practices, at this point, are difficult to reduce to narrow, technical practice - as so much depends on the therapeutic relationship, and many of these practices operate in an different paradigm. A narrow, randomized, clinical trial approach fails to incorporate information about the impact of treatment on patients. For example, patients may look for meaning in their illness and some complementary approaches may lead to positive outcomes that are more related to personal development rather than to measures of disease (Richardson, 2002).

In addition, the current miscommunication between the traditional medical world and the CAM world has led to difficulties in simply the documentation and storage of research. For example, a number of databases exist that specialize in citations of CAM research. Yet, search strategies may be different for each one, as databases have different index terms. For example, "reflexology" is not an term recognized by MEDLINE, and reflexology articles are instead indexed using the term "massage." Access to published and unpublished research is critical for the development of evidence-based complementary medicine, and this incongruity in search terms creates a barrier in doing good research on these topics. Steps are being made to address this, however, including the Research Council for Complementary Medicine's development of a specialist complementary therapy thesaurus (Richardson, 2002). It is also important to note that the ability to interpret evidence in an appropriate manner is significant. However, many CAM practitioners may not understand the terminology of evidence-based medicine research, making it an important mission to educate practitioners of both allopathic and CAM therapies in each others' practices.

Impact on Public Health

The increased use of, and interest in, complementary and alternative medicine necessitates research in energy healing modalities and their impact on public health. Reiki is being used in hospitals across the nation, and, anecdotally, has been improving the quality of hospital experiences for many individuals. As noted earlier, Reiki has been shown to have beneficial physiologic effects on patients as well. Although further research is necessary in this area, Reiki has already seen growing popularity in health care for decreasing stress and improving the quality of health care for individuals. Discovering how Reiki works, and explaining this in a Western medical paradigm, is essential for the growth of this practice and its use in more conventional medical settings. More randomized, clinical trials will also lead to a comprehensive list of contraindications for Reiki practice, thereby making it safer. However, as noted above, it is important not to lose the qualitative aspect of assessing Reiki's efficacy, because there may be things that modern science cannot quantify in a Reiki experience.

Diagnostic energy medicine also has huge potential for public health, if found effective in diagnosing and treating disease. The prevention capabilities of machines such as the Aurastar could be extremely helpful, and improve health care significantly. If health care institutions could use a machine like this one to test the balance of the *chakras,* and this could be usefully interpreted to illicit information about the health of the individual, onset of certain diseases might be prevented. In turn, this would prevent further rises in health care costs, as these types of machines cost far less than other, more expensive diagnostic tools such as computerized tomography (CT) scans

or magnetic resonance imaging (MRI). In addition, if used as part of a regular check-up visit, the analysis from these types of machines could screen for illness and work toward preventing diseases, thereby decreasing medical costs. *Chakras* may very well be a window to the overall health of an individual, but more rigorous tests need to be undertaken in order to justify the use of a machine that claims to measure *chakra* activity in our current, evidence-based paradigm of Western medicine.

It can be argued that Ayurveda and the concepts of Ayurveda discussed in this thesis cannot be effectively assessed if they are used outside of their originating cultural system of care. Yet, these methodologies are not being studied in a vacuum. They are being adopted in a Western medical paradigm, and being used as complementary tools. It is imperative to note this, and a public health duty to study them as they are being put to use *outside* of their cultural beginnings. It is also important to note that individuals from India or Japan, for example, may be moving to the United States and using these systems in their entirety, so studies of complete systems in their cultural context should also not be left behind. In short, it is the duty of public health professionals to study these methodologies in all their contexts, whether as whole systems of care or as complementary care.

Conclusion

The concept of energy medicine and the practice of Reiki are growing in popularity in the U.S. and have the potential to impact our current system of health care. However, more research is warranted in order to determine more clearly the efficacy of both of these practices for varying conditions in combination with

traditional methods of health care. Discovering a way of measuring the impact of any treatment or practice on the energy system of an individual would break ground in our current system of care. Examining the combination of these practices and their relationship, in the context of how they are used in our current medical paradigm, is a further step in this direction.

This study is meant to serve as a pilot for future research. Though difficult, it is imperative from a public health standpoint to sift through the concepts of CAM modalities and learn how alone or in combination they can improve upon our current standard of health care.

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